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GYPSY MOTH in South Dakota

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in cooperation with
South Dakota Department of Agriculture
USDA Forest Service
USDA Animal and Plant Health Inspection Service*

The gypsy moth has been the most destructive insect pest of trees and shrubs in the eastern United States following its introduction in 1869. Large infestations are capable of completely defoliating deciduous trees over extensive areas. Defoliation alters the environment, reducing shade and affecting water quality. Defoliation also weakens trees and predisposes them to attack from other insects and diseases, often resulting in tree mortality.

A major annoyance in urban and recreational areas, in addition to the unsightliness of defoliated trees, is the presence of masses of caterpillars and fecal droppings resulting from heavy gypsy moth infestations. In addition, some people are allergic to the irritating hairs of the caterpillars.

The potential damage caused by gypsy moth infestation poses a very significant threat to South Dakota forests, state and federal parks, and recreational areas should it become established. In addition, gypsy moth represents a potential threat to the commercial nursery industry in South Dakota.

Due to the destructive nature of this exotic pest and its ability to readily move, the United States Department of Agriculture (USDA), Animal and Plant Health Inspection Service (APHIS), Plant Protection and Quarantine, maintains a **domestic federal quarantine, to prevent the movement of the gypsy moth into and within the United States.**

In South Dakota, the South Dakota Weed and Pest Commission maintains the gypsy moth as a State Declared Pest and enacts policies to prevent the establishment of a gypsy moth population within the state.

How Do Gypsy Moths Get Here?

Although gypsy moths are not native to South Dakota, they can be transported to our state on campers, picnic tables, outdoor furniture, grills, recreational vehicles, and other outdoor equipment. Several life stages may be transported to new areas by unsuspecting tourists or people moving from gypsy moth-infected areas.

Because gypsy moths can be unknowingly transported into new areas on such an array of articles, detection of new introductions and low level populations is extremely important. Experience in other areas of the country has shown that early detection and eradication of small, new colonies is far less difficult and expensive and more successful than trying to deal with established, larger populations.

Detection and Survey

The USDA Animal and Plant Health Inspection Service, working in cooperation with the South Dakota State Department of Agriculture and the USDA Forest Service, has primary responsibility for detecting gypsy moths coming into South Dakota. These agencies deploy an extensive survey trapping network each year throughout South Dakota.

A network of volunteers and members of several agencies including weed and pest boards; conservation districts; county Extension staff; park and recreation departments; city employees; Department of Game, Fish, and Parks; Soil Conservation Service; and Army Corps of Engineers assist in annual detection surveys.

Non-insecticidal pheromone traps are used to detect the presence of gypsy moth by attracting and catching adult male moths in the vicinity

using a powerful scent produced by the female moth. Males are captured in a sticky substance when they enter the trap. Traps may be orange or green and are tent-shaped cardboard containers. These traps are located in parks, recreational areas, rest stops, campgrounds, and similar areas frequented by tourists and in urban areas where influx of new residents is common.

When more than one moth is captured in a trap in a given year, more intensive trapping usually is conducted in that area the following year to determine if a population has become established. It generally is agreed that single male moth captures do not indicate an established infestation.

Based upon the results of these gypsy moth surveys, recommendations can be made as to whether eradication efforts might be needed and what specific control strategies should be considered.

Gypsy Moth Life Cycle

Eggs

Adult females deposit their eggs in a single mass in mid July through August. Egg masses may average from 75 to 750 eggs which are covered with a mat of hairs from the female. The gypsy moth overwinters in the egg stage. Egg masses may be found in any protected area including surfaces of tree bark, rocks, picnic tables, automobiles, and recreational vehicles. Eggs will hatch from May through June depending on temperature.

Larvae

Larvae go through 5 or 6 growth stages, shedding their skin between each stage. The earliest stage is only about 1/8 inch long, but fully grown larvae are 1 1/2 to 2 1/2 inches long. Within the first few hours after hatch, all larvae turn black and have many long, black hairs on the body. These young larvae climb to tops of trees where they may be picked up on the wind and carried to new trees.

Initially, larvae feed by chewing small holes in the leaves. Second and third stage larvae feed on leaf margins and also stay in the tree tops. Fourth stage larvae feed in the upper canopy at night and may descend to the ground at dawn if the population is sparse. Final stage larvae spend all their time in the upper canopy feeding on leaves. Later stage larvae are distinguished from other common leaf feeding caterpillars by 5 pairs of blue dots along the back of the body followed by 6 pairs of red dots.

Pupae

Fully developed larvae enter the pupal or resting stage where larvae transform to the adult moth. Pupae have been found attached to virtually anything in the area including picnic tables, trees, shrubs, trash cans, ladders and vehicles. Adults emerge from pupal cases in about 1014 days.

Adult moths vary somewhat in color and behavior depending upon their sex. Male moths have dark brown wings with black, zig-zag patterns, and large, feathery antennae. Male moths are capable of flight and are attracted to females via a sex pheromone or scent emitted by the female moth. Female moths do not fly and are nearly white in color, with zig-zag patterns on the wings similar to those of the male. Females deposit their egg masses in a single cluster, often very close to the empty pupal case. Adults usually are most active during July and August.

Preferred Hosts

Gypsy moth larvae prefer to feed on leaves of oak, birch, basswood, aspen, poplar, willow, hawthorn, boxelder, and apple. However, larvae will feed on a wide variety of other tree and shrub species, including several western conifers.

How Can the Public Help?

Early detection is imperative in our efforts to prevent gypsy moth from establishing itself in South Dakota. Being able to identify the various life stages will be helpful. Attached you will find a USDA Forest Service fact sheet with full color photos of the various life stages. Public awareness by people moving to South Dakota from infested areas or by tourists visiting or returning to our state can help prevent introduction of this serious pest.

If you suspect a gypsy moth infestation in your area, please contact your local County Weed and Pest Supervisor, County Cooperative Extension Office, the State Department of Agriculture, USDA APHIS, or the SDSU Cooperative Extension Service.

Phone numbers

- County Weed and Pest Supervisor—See local directory
- County Extension Office—See local directory
- State Department of Agriculture, Division of Regulatory Services—773-3796
- USDA, API-US (Pierre)—224-1 713
- SDSU Extension Service (Brookings)—688-4603

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